Pretty Lake

LaGrange County

Supplemental Walleye Evaluation

Date of Survey: September 19, 2010

Biologist: Neil D. Ledet, District 2 Fisheries Biologist

Objective: The objective of this survey was to evaluate survival of walleyes that are stocked into Pretty Lake, especially survival of advance walleye fingerlings stocked in the fall of 2007 and 2009 in accordance with work plan 300FW1F10D42617.

Methods: Fish collection effort consisted of 1.50 hours of pulsed D.C. nighttime electrofishing. Only walleyes were collected. Two dip netters were used and approximately 95% of the shoreline was covered. Walleyes were measured to the nearest 0.1 in TL and weights were taken to the nearest 0.01 pound.

Summary: The Pretty Lake Conservation Club began stocking walleyes into Pretty Lake in the mid 1980's. The first Indiana Division of Fish and Wildlife (DFW) walleye stocking into Pretty Lake occurred in 1990 (Table 1). Walleyes were stocked again in 1993 by the DFW and stockings continued annually through 2007. These 1 to 2-in TL June walleye fingerlings were stocked at a rate of approximately 100 per acre according to state guidelines. To date, the DFW has stocked 312,070 June walleye fingerlings into Pretty Lake.

Pretty Lake was stocked with 2,280 advanced fall walleye fingerlings in October 2007 after the fall 2007 evaluation showed that the June stocking failed. These fish averaged 8.9 in TL and were stocked at a rate of 12.4 per acre. In 2009, 1,840 advance walleyes (10 per acre) were stocked. These walleyes averaged 5.9 in TL. Both groups were produced at the Fawn River State Fish Hatchery during an experimental rearing project. Considering the relatively poor survival from June fingerlings in recent years, including the failed 2007 stocking, its zebra mussel status and the number of fall fish available, Pretty Lake was selected to utilize these bonus fish.

Thirty-two walleyes were collected during the September 19, 2010 survey. Of these, 17 were age-1 and ten were age-3 walleyes were from the 2009 and 2007 stockings of advanced walleyes respectively. Five age-4 or older walleyes were also collected. Age-1 walleyes were collected at a rate of 11.3 per electrofishing hour while 6.7 age-3 walleyes were collected per hour (Table 2). The electrofishing catch rate of age-1 walleyes at Pretty Lake is similar to other northern Indiana natural lakes stocked with a minimum of 10 advanced walleyes per acre (Table 3). On the night of the 2010 survey, the water temperature was 68° F.

The 2009 advanced walleyes stocked at 10 per acre averaged 3 in TL smaller than the walleyes stocked in 2007. As a result, the weight of stocked walleyes dropped from 4.6 per pound in 2007 to 21.9 in 2009. Wall Lake in LaGrange County was also stocked with Fawn River Hatchery advanced walleye in 2009. These fish averaged 8.5 in TL at stocking. During the 2010 fall Wall Lake walleye survey, 34.0 age-1 walleyes were collected per hour of electrofishing. Studies referenced by Kamp 2009 suggest that there is no difference in survival of June fingerlings and 4.0 in TL advanced fingerlings to age1 and that advanced fingerlings may need to be greater than 7.0 in TL for there to be a benefit over June fingerlings.

Age-1walleyes collected ranged in length from 8.9 to 12.3 in TL and averaged 11.3 inches (Table 4). Since the mid 1990's, age-1 Pretty Lake walleyes averaged 12.4 inches, similar to five other northern Indiana natural lakes (Table 4). The relatively small size at stocking in 2009 and competition are likely contributing to the relatively smaller size observed in both the 2007 and 2009 year classes.

The strong walleye year class established by the 2007 stocking continues into 2010. Age 1, 2 and 3 walleye from this year class were collected at rates of 30.7, 22.4 and 6.7 per electrofishing hour respectively (Table 5). By far, this is the strongest year class to date established in Pretty Lake.

While fall nighttime electrofishing has proven to be a reliable sampling tool to evaluate survival of age-0, age-1 and to a lesser degree age-2 walleyes, it is less effective in collecting older walleyes in lakes like Pretty. Many of these lakes have shallow, sandy flats with little cover.

While some adult walleyes will use these sandy flats in the fall months, the time they spend there appears short, especially when near shore vegetation is lacking which reduces their vulnerability to electrofishing. In comparison, during the fall 2010 walleye sampling conducted at Wall Lake, age-3 walleyes were collected at a very high rate of 15.3 per electrofishing hour. This is over three times higher than the catch rate in 2008 when this year class was age-1. During 2010, native aquatic vegetation expanded significantly in the shallows providing near shore habitat and likely increased vulnerability of these older walleye to fall electrofishing.

Recommendations:

1. The DFW should continue to pursue the production of advanced fall walleye fingerlings for stocking as addressed in previous Walleye Management Committee reports.

2. Advance walleyes should be stocked into Pretty Lake in alternate years at a rate of 10 per acre with a minimum size of 7 in TL.

3. The DFW should continue to annually evaluate survival of fall stocked walleyes.

Literature Cited:

Andrews, S., Committee Chairman 1994. Walleye management in Indiana. Committee Report. Indiana Division of Fish and Wildlife. Indianapolis, Indiana. 39 pp.

Kamp,Jeffrey M. and Gene R. Hatzenbeler 2009. Survival and growth of walleye fingerlings stocked at two sizes in 24 Wisconsin Lakes. North American Journal of Fisheries Management, pages 966-1000.

Ledet, N. 2009 Pretty Lake Walleye Evaluation. Indiana Division of Fish and Wildlife. Indianapolis, Indiana.

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Approved by: Stu Shipman, North Region Fisheries Supervisor
Date: 2/7/11

Table 1. Division of Fish and Wildlife walleye stocking, sampling effort and catch at Pretty Lake, LaGrange County, 1990 through 2009.

Date	Number per	Ave.	Number	Stocking			Date	Number	Walleye Collected Per Electrofishing Hour or Net Lift				
Stocked	Pound	Length	Stocked	Density	Gear	Effort hrs/lifts	Sampled	Collected	Age-0	Age-1	Age-2	Age-3+	Total
6/90	766	1.9	18388	100	DC	2.00	10/90	6	0	0	0	3.0	3.0
6/93	625	2	17350	94	DC	2.00	10/93	41	20.5	0	0	0	20.5
6/94	1028	1.6	19354	105	DC	2.00	10/94	45	9.5	12.0	0	1.0	22.5
6/95	640	1.9	20970	114	DC	2.00	10/95	27	5.0	3.0	4.5	1.0	13.5
6/96	711	1.7	19900	108	DC	8.00	5/96	80	0	1.1	4.5	4.4	10.0
6/96					GN	9	6/96	25	0	0.1	1.2	1.4	2.8
6/96					DC	1.00	6/96	6	0	2.0	2.0	2	6.0
6/96					DC	2.00	9/96	14	2.0	2.0	2.5	0.5	7.0
6/97	832	1.7	19136	104	DC	1.50	10/97	5	0	1.3	1.3	0.7	3.3
6/98	1131	1.5	18427	100	DC	1.50	10/98	32	16.0	0	2.7	2.7	21.3
6/99	824	1.8	20595	112	DC	1.50	10/99	26	6.7	6.7	1.3	2.7	17.3
5/00	2685	1	18795	102	DC	1.75	10/00	15	0	4.6	2.9	29	8.6
5/01	747	1.7	18675	101	DC	1.75	10/01	20	7.4	0	1.1	2.9	11.4
5/02	1520	1.4	17900	97	DC	1.50	10/02	8	0.7	1.3	2.0	1.3	5.3
5/03	794	1.7	18641	101	DC	1.75	10/03	13	5.1	0.6	0.6	1.1	7.4
5/04	1006	1.5	18400	100	DC	1.66	10/04	19	0.6	4.8	1.8	4.2	11.4
6/05	947	1.6	21781	118	DC	1.58	10/05	7	0	0	0	4.4	4.4
6/06	1,142	1.5	22,948	125	DC	1.25	9/06	9	5.6	0	0	1.6	7.2
6/07	1,479	1.4	20,810	113	DC	1.50	9/07	4	0	1.3	0	1.3	2.7
10/07	4.6	8.9	2,280*	12.4	DC	1.50	9/08	47	0	30.7	0.7	0	0
2008			None										
10/09	21.9	5.9	1,840*	10.0	DC	1.25	9/09	29	0	0	22.4	0.8	0
2010			None		DC	1.50	9/10	32	0	11.3	0	7.5	0

*Advanced fall fingerlings: DC-nighttime electrofishing: GN-standard experimental gill net

Table 2. Fall nighttime DC electrofishing catch rates by age for walleyes collected from Pretty Lake, LaGrange County 1990 through 2010.

Year	Number Stocked	EF Effort (hours)	Number of Age- 0 / hour	Number of Age-1 / hour	Number of Age-2 / hour	Number Age-3 & older / hour
1990	18,388	2.00	0	0	0	3.0
1993	17,350	2.00	**20.5**	0	0	0
1994	19,354	2.00	**9.5**	**12.0**	0	1.0
1995	20,970	2.00	5.0	**3.0**	**4.5**	1.0
1996	19,900	2.00	2.0	2.0	**2.5**	0.5
1997	19,136	1.50	0	1.3	1.3	0.7
1998	18,427	1.50	**16.0**	0	2.7	2.7
1999	20,595	1.50	**6.7**	**6.7**	1.3	2.7
2000	18,795	1.75	0	**4.6**	**1.1**	2.9
2001	18,675	1.75	**7.4**	0	**1.1**	2.9
2002	17,900	1.50	0.7	**1.3**	2.0	1.3
2003	18,641	1.75	5.1	0.6	**0.6**	1.1
2004	18,400	1.66	0.6	4.8	1.8	4.2
2005	21,781	1.58	0	0	0	4.4
2006	22,948	1.25	5.6	0	0	1.6
2007	20,810	1.50	0	1.3	0	1.3
2007	2,280*					
2008	None	1.50	N/A	**30.7**	0.7	0
2009	1,840*	1.25	N/A	N\A	**22.4**	0.8
2010	None	1.50	N/A	11.3	**0**	**6.7**

*Advanced fall fingerlings

Table 3. Number of age-1 advanced fall stocked walleyes collected per nighttime DC electrofishing hour at Big Turkey, Crooked, Little Turkey, Pretty, Simonton, Sylvan, Wall and Winona lakes, 2001 through 2010.

Lake	Date Stocked	# Stocked	# Stocked Per Acre	Average Size or range (Inches)	# of Age 1 Walleye Collect Per Electrofishing Hour	Year Sampled
Big Turkey (450 ac)						
	10/20/02	2,000	4.4	5-7	0.5	2003
	11/01/03	2,100	4.7	5-8	3.5	2004
	10/11/04	2,030	4.5	6-8	5.3	2005
	10/16/05	2,030	4.5	6-8	6.8	2006
	10/15/06	2,025	4.5	6-9	1.0	2007
	10/14/09	2,250	5.0	6-8	6.0	2010
Average #/hr					3.4	
Crooked (802 ac)						
	9/25/01	7,860	9.8	7.6	16.5	2002
	9/27/02	8,080	10.1	6.9	9.5	2003
	10/03/03	7,881	9.8	6.8	7.0	2004
	10/06/04	8,020	10.0	6.5	15.9	2005
	10/04/05	8,020	10.0	6.5	7.4	2006
	9/28/06	8,070	10.1	6.9	12.9	2007
	10/09/09	8,020	10.0	6-8	9.8	2010
Average #/hr					11.5	
L. Turkey (135 ac)	10/17/07	1,225	9.1	6-8	1.0	2008
	10/15/08	1,000	7.4	6-8	1.5	2009
	10/14/09	500	3.7	6-8	6.0	2010
Average # /hr					3.6	
Pretty Lake (184 ac)	10/07/07	2,280	12.4	8.9	30.7	2008
	10/08/09	1,840	10.0	5.9	11.3	2010
Average # /hr					21.0	

Table 3 continued

Simonton (299 ac)						
	10/24/00	2,000	6.7	5-8	8.5	2001
	10/11/01	2,000	6.7	5-8	3.2	2002
	10/01/02	2,200	7.4	5-8	5.7	2003
	10/21/03	2,000	6.7	5-8	2.4	2004
	10/11/04	2,000	6.7	5-8	8.1	2005
	10/10/05	1,500	5.0	5-8	9.4	2006
	10/4/06	1,220	4.1	6-8	2.1	2007
Average #/hr					5.6	
Sylvan (669 ac)						
	9/25 & 10/03/01	12,620	18.9	6.3	24.3	2002
	10/10 & 10/16/02	13,380	20.0	6.0	13.7	2003
	10/08 & 10/24/03	13,200	19.3	6.0	14.3	2004
	10/08 & 10/12/04	13,380	20.0	7.2	16.1	2005
	10/06 & 10/11/05	13,380	20.0	6.8	34.9	2006
	9/29 & 10/3/06	13,380	20.0	6.7	27.0	2007
	10/08/09	10,035	15.0	6-9	14.3	2010
Average #/hr					20.7	
Wall (141 ac)						
	10/11/.5	1,400	10	5-7	34.0	2006
	10/3/06	1,400	10	5-8	6.7	2007
	10/17/07	1,400	10	6-8	4.7	2008
	2008	None				
	10/08/09	1,410	10	8.5	34.0	2010
Average #/hr					19.8	
Winona (562 ac)						
	9/27/01	10,740	19.1	6.6	9.9	2002
	10/02 & 10/16/02	11,240	20.0	6.3	15.7	2003
	10/01 & 10/03/03	11,300	20.1	7.5	25.4	2004
	10/01 & 10/12/04	11,240	20.0	6.4	1.8	2005
	10/07 & 10/11/05	11,240	20.0	7.3	4.6	2006
	9/26 & 10/3/06	11,240	20.0	7.0	12.0	2007
	10/07/09	8,430	15.0	6-9	17.7	2010
Average #/hr					12.4	

Table 4. Number, length range and average length in inches of walleyes collected during fall nighttime D.C. electrofishing from Pretty Lake, LaGrange County, 1990 through 2009.

	Age 0			Age 1			Age 2		
Year	Number Collected	Length Range	Average Length	Number Collected	Length Range	Average Length	Number Collected	Length Range	Average Length
1990	0			0			0		
1993	41	7.2 - 9.1	8.2	0			0		
1994	19	7.0 - 9.5	8.9	24	12.4 - 14.5	13.8	0		
1995	10	7.5 - 8.5	8.1	6	11.5 - 12.5	12.1	9	14.8 - 15.9	15.4
1996	4	8.2 - 9.2	8.8	4	12.9 - 14.2	13.6	5	16.2 - 17.8	17.2
1997	0			2	12.9 - 13.1	13.0	2	15.0 -16.9	16.0
1998	24	8.5 - 10.5	8.3	0			4	15.5 - 16.5	16.1
1999	10	8.6 - 10.6	9.5	10	13.4 - 15.4	14.2	2	16.2 - 16.3	16.3
2000	0			8	12.0 - 14.5	13.8	2	16.6 - 16.7	16.7
2001	13	8.9 -10.8	9.6	0			2	16.2 - 16.3	16.3
2002	1		10.4	2	13.3 - 13.5	13.4	3	14.0 - 15.0	14.7
2003	9	8.7 - 10.3	9.6	1		12.2	1		16.3
2004	1		9.4	8	11.6 - 14.9	13.8	3	16.2 - 17.1	16.5
2005	0			0			0		
2006	9	8.1 - 9.5	8.7	0			0		
2007	0			2	14.7 - 14.9	14.8	0		
2008	0			46	10.1 – 14.0	11.1	1	15.9	15.9
2009	0			0			28	12.4 – 15.6	14.1
2010	0			17	8.9 – 12.3	11.3	0		
Totals	141		8.7	130	8.9 – 15.4	12.4	61	12.4 – 17.8	15.2

Table 5. Number and average length in inches of age-0 through age-2 walleyes collected during fall gill netting and or nighttime DC electrofishing surveys from six northern Indiana lakes, 1997-2010.

	Age-0		Age-1		Age-2	
Lake	Number Collected	Average Length	Number Collected	Average Length	Number Collected	Average Length
Bass		6.5		11.3		
B. Turkey	0		80	12.8	27	15.9
Clear	485	7.7	237	11.7	49	15.3
Max	660	7.7	190	11.9	73	14.7
Pretty	141	8.7	130	12.4	61	*15.2
Wall	0		119	12.0	33	14.5

*Average was 16.1 in TL prior to the 2009 sample of 28 age-2 walleyes.